PPE I'm A Believer!

MSG RICHARD BURNETTE

The blast knocked me down and killed four Iraqi kids who happened to be in the wrong place at the wrong time. Lying on the ground on my back, I turned my head and saw the bloody and lifeless body of one of them, a little boy. I'll never forget his eyes; they were still open and fixed on me, his life snuffed out by an unknown suicide bomber. The driver and gunner from my vehicle, as well as the gunner from the trail vehicle and 17 civilians, also lay injured in the street.

You wouldn't know it, but the day began like any other. I got up at about 0500, worked out, showered, had breakfast, and prepared to leave our forward operating base (FOB) with my battalion commander as part of the unit's personal security detachment. My NCOs and I conducted pre-combat inspections to ensure we were prepared for our mission in southern Baghdad.

As we departed the gate, I heard the battalion sergeant major repeatedly calling the tactical operations center (TOC) over the radio to report our departure. However, the TOC didn't respond and, as the battalion operations sergeant, I got a little upset. I picked up the handset, removed my left earplug, and called the TOC myself. After I got through to the TOC, we departed the FOB and began the drive to our destination. In my frustration I forgot to replace my left earplug, though, and I didn't think about it again until it was too late.

We pulled just off the road at the mission site and parked our four vehicles in a line. We were in a densely populated, residential neighborhood with houses on both sides of a street busy with vehicle and pedestrian traffic. I moved to the rear of my vehicle to provide flank security, and several Iraqi children ran toward me. They probably were hoping for food, money, or whatever we'd give them. I told the kids to leave the area, but they came back a short time later.

I had my back to the street, but behind me I heard gears grinding, like when a vehicle downshifts. I turned around and saw a small car making a U-turn no more than 10 feet away from me. My gunner and I knew something wasn't right, so he spun his turret toward the vehicle while I raised my rifle to fire, but neither of us had time to act.

The explosion was extremely loud and powerful. I stumbled backward a few steps and tried to collect my senses. My ears were ringing badly, but I initially thought I'd survived the attack uninjured—at least until my legs gave out. I fell onto my back and opened my eyes. That's when I saw the little boy, who was no more than 9 or 10 years old, just a little younger than my own son.

I knew I had to act fast, no matter how injured I might be. I was worried about snipers, so I started to crawl toward my vehicle for cover. One of my Soldiers pulled me toward the vehicle, checked on the other Soldiers, and established local security around the blast site. I then heard someone say, "Get a tourniquet on him!" and realized they were talking about me. Our medic secured a tourniquet on my left arm. That act saved my life—the surgeon who operated on me later said I would've bled to death had it not been for that tourniquet.

We returned to the FOB within 17 minutes of the explosion, and I received preliminary medical

attention there. Within the next hour, I was stabilized and moved to a combat support hospital on the other side of Baghdad. I was flown to Landstuhl Regional Medical Center in Germany 2 days later, and 4 days after that I made the long flight to Walter Reed Army Medical Center in Washington, D.C.

It wasn't until I got to Walter Reed that I realized just how badly I was injured. My entire body was wrapped in bandages, and I was wearing a neck brace. My right thumb was blown off in the blast, and my left thumb required amputation. My left arm was fractured in three places, and the median and radial nerves were severely injured. My left elbow was shattered, and I'd taken shrapnel to both thighs and my left hip. My left eardrum burst during the explosion, resulting in profound hearing loss in that ear. (What a time to remember that left earplug!) I also had nerve damage in my right foot.

I spent the next several weeks trying to make sense of what had happened. Sometimes I felt very lucky to be alive, thankful it was me and not one of my Soldiers lying in that hospital bed. Other times I felt somewhat sorry for myself and downright angry.

The rehabilitation team at Walter Reed wouldn't let me feel that way for long, however. I soon was walking around the hospital with the help of a walker. My body was beginning to recover, but at night I would lie in bed and think about the day I was hit. I would replay the events over and over in my head and wonder what I could've done differently.

I eventually realized there was nothing I or my chain of command could've done to prevent the attack. We were simply a target of opportunity, one the enemy viciously exploited. Our survival, however, was due to the training we'd received and our personal protective equipment (PPE), which prevented further catastrophic injuries to me and my Soldiers.

I was wearing all my PPE that day, and it helped save my life. The Small Arms Protective Insert plates in my Kevlar vest repelled the shrapnel that would've killed me instantly had it hit my chest. The Deltoid (shoulder/arm) and Axillary (armpit/underarm) Protection (DAP) also performed exactly as designed. Although I suffered extensive damage to my left arm, the DAP prevented a major artery in my upper arm from being severed. The doctors told me that had the artery been severed, I could've faced full-limb amputation or even death.

Without my ballistic goggles I'd be at least visually impaired or even completely blind. I still have shrapnel embedded in my face, including two fragments just above my left eye and on the bridge of my nose near my left eye socket. I have no doubt that if I hadn't been wearing those goggles, my eyesight would've been irreparably altered for the rest of my life. My Kevlar helmet protected the rest of my head from the deadly shards of shrapnel.

The one-handed Combat Application Tourniquet (CAT) our medic used on me that morning was priceless. I believe she prevented me from bleeding to death and saved my left arm with her skill and that tourniquet. I've since learned blood loss is the leading cause of preventable death on today's battlefield, and the recommended treatment for hemorrhage is a rapidly applied tourniquet like the CAT.

Then there were my earplugs. My right ear is fine because I had an earplug in it, but my left eardrum was destroyed. The Combat Arms Earplugs are standard issue for Soldiers serving in combat zones, but there certainly are times when Soldiers need hearing protection at home. I've corrected Soldiers for not wearing their earplugs hundreds of times, and now I'm the one with profound hearing loss because I was frustrated and forgot to reinsert one of mine.

All in all, I'm alive and reasonably well because my PPE performed as it was intended. I've recovered from most of my injuries and am hoping to stay on active duty. If allowed to do so, I intend to share my experience with young Soldiers and impress upon them the value of their PPE. Individual Soldiers must wear it properly, and leaders must enforce the standards to save lives. Before I deployed, I sometimes questioned the practicality of lugging around so much equipment. But I'm a believer now—I'm living proof PPE works!

Editor's note: This story was adapted from the article "Protective equipment: It's a lifesaver" in the January 2006 NCO Journal.

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Eye See...

1LT ANTHONY AGUILAR
172nd Stryker Brigade Combat Team

My ballistic goggles turned out to be my best friend during a recent mission in Iraq. I'm a platoon leader with a Stryker unit, and we were on a "routine" patrol when I learned just how important PPE is to survival here.

Our Stryker was the lead of three vehicles on this mid-morning mission. Including myself, there were 10 Soldiers in the vehicle: our driver, the vehicle commander, and seven dismounted Soldiers. I was standing in the left-front hatch of our vehicle, and we were traveling on an asphalt road when something caught my driver's eye.

He'd spotted a water pipe that ran beneath the street and drained into a culvert at an intersection. Such a sight might seem pretty ordinary anywhere else, but keep in mind we're in Iraq. Our enemy often buries improvised explosive devices (IEDs) beneath ground surfaces used by both civilian and military traffic.

Acting on instinct, our driver made a sharp turn to avoid the intersection, fearing an IED might be hidden in the pipe. It turned out his suspicions were accurate. We heard a massive explosion, and I was thrown into the vehicle's hull as shrapnel and debris flew toward the vehicle.

When the blast subsided, we took a head count and found everyone was alive and in pretty good shape considering our situation. I was okay too, but my goggles were missing, which was strange since I never go on missions without them and my full complement of PPE. I realized they must've been torn from my face during the explosion.

It didn't take me long to find the goggles, and I discovered just how close I'd come to serious injury. A large shard of shrapnel was lodged in the edge of the right lens, and the impact apparently dislodged the goggles from my face. Although the shrapnel punctured the lens, it

NET Knowledge

Mr. Jim McKinley, the Army Combat Readiness Center's Battle Command Knowledge System (BCKS) facilitator, discovered this Soldier's story while reviewing the BCKS Leader Network, a series of connected, online professional forums that create an informal network for professional interactions across the Army. BCKS is a Web-based knowledge management system that provides warfighters with access to information such as standard operating procedures; tactics, techniques, and procedures; and tribal lore collected from Soldiers who learned their lessons the hard way, sometimes on the battlefield. BCKS joins people, information, and expertise to increase the content, quality, and accessibility of Army knowledge to improve leaders' adaptability and intuition and build high-performance teams. Anyone with safety- or readiness-related BCKS questions can contact Mr. McKinley by e-mail at james.mckinley1@us.army.mil.

didn't penetrate through it, saving my eyesight and possibly my life.

Our survival is a testament to the training and equipment the Army provided us for this deployment. That IED was powerful enough to throw large chunks of asphalt 50 meters in all directions and blow out windows in three nearby buildings. The windshield of a truck parked 75 meters away was destroyed, and we found shrapnel in its front seat. The blast crater was 7 feet long by 8 feet wide and about 3 inches deep. Thanks to our driver's sharp eyes and quick thinking, we're all alive today; and thanks to my goggles, I can still see!

We learned two important lessons that day. First, understanding the enemy and preparing for potential hazards in the area of operations is vital to saving lives and completing missions successfully. This is true for every member of the team, not just leaders. Every Soldier must understand the fight to survive.

Second, PPE is essential and non-negotiable. The body armor system and Small Arms Protective Insert plates are battle-proven lifesavers. Kevlar helmets, ballistic eyewear, flame-resistant gloves, earplugs—they've all proven their weight in gold every day in combat. Before every mission, my unit's NCOs double check every Soldier's PPE, and we then double check each other. Our lives are worth the time it takes.

I've since gotten new goggles, but I'm keeping the pair I was wearing that day as a reminder of just how close I came to tragedy. Do your part and wear your PPE. Trust me—you won't be sorry!

Contact the author by e-mail at tony.aguilar@us.army.mil.

DID YOU KNOW?

The Army puts commercially available ballistic eyewear and other protective equipment through rigorous testing before approving any model for Soldier use. The following equipment has been approved for combat and training operations (excluding laser applications) by the Product Manager-Clothing and Individual Equipment and is available through the Army supply chain:

Goggles:

- Wiley X SG-1 Spectacle Kit, *NSN 4240-01-504-0994*
- Wiley X PT-1 Spectacle Kit, *NSN 4240-01-510-7853*
- Uvex XC Spectacle Kit, *NSN 4240-01-516-5361*
- Pyramex Venture II Spectacles, *NSNs 4240-01-500-6174 (clear) and 4240-01-500-6173 (gray)*
- Oakley SI M Frame Kit (face shield, industrial), *NSN 4240-01-525-3095*
- Revision Sawfly USA Military Kit, *NSNs 4240-01-527-4051 (size regular) and 4240-01-527-4018 (size large)*
- Body Specs PISTOL Kit, *NSN 4240-01-526-9637*
- Eye Safety Systems Interchangeable Component Eye Shield 2 Kit, *NSN 4240-01-525-5085*
- Eye Safety Systems Land Operations Goggles Kit, *NSN 4240-01-504-0052*
- Eye Safety Systems Vehicle Operations Goggles Kit, *NSN 4240-01-525-5101*
- Eye Safety Systems NVG Goggles Kit, *NSNs 4240-01-504-6222 (black frame); 4240-01-504-5706 (olive drab frame); and 4240-01-504-5727 (desert tan frame)*

Fire-resistant gloves:

- Hatch Corporation:
  NSN 8415-01-F00-0220, S
  NSN 8415-01-F00-0221, M
  NSN 8415-01-F00-0222, L
  NSN 8415-01-F00-0223, XL
  NSN 8415-01-F00-0226, 2XL
- Southwest Glove & Safety Equipment:
  NSN 8415-01-F00-0216, S
  NSN 8415-01-F00-0217, M
  NSN 8415-01-F00-0218, L
  NSN 8415-01-F00-0225, XL
  NSN 8415-01-F00-0219, 2XL

This Little Piggy...

SFC DAVID ALAN MELANCON
3rd Brigade, 1st Cavalry Division
Fort Hood, TX

Have you ever noticed most accidents happen when you least expect them? Well, there I was, just coming in from a field training exercise (FTX) and about to perform a simple task when an accident happened to me. I certainly wasn't expecting to wind up in the hospital that January day.

I'm a Bradley systems maintainer and maintenance platoon sergeant for a forward-support company. We'd just completed the FTX in preparation for a deployment to the Joint Readiness Training Center and, after that, possibly Iraq. We were tired after spending 3 weeks in the field, but it was almost over—all we had left to do was clean our vehicles. At about 1700, the last of the vehicles were staged at the wash rack, so we went to work.

Everything about this day was relatively normal, with one notable exception: that morning, I'd taken my wedding ring off my dog tags and slipped it back on my left-hand ring finger. I figured since our training was over, wearing my ring was no big deal. I say this is notable because I always wear my ring around my dog tags when I'm on duty, especially in the motor pool or in the field. I'd spent a year in Iraq during Operation Iraqi Freedom II, and the only times I put on my ring were when I left for R & R leave and when my unit redeployed home. That system worked well, and thankfully I came home not only alive but with all 10 fingers!

I needed to get my wet-weather gear, which was in a shelter on the back of an LMTV trailer. I climbed on the trailer, got my things, and grabbed the right side rail for balance as I prepared to climb back down. Unfortunately, my foot slipped as I stepped on the lower bumper, and I began to fall. My hand slid down the rail as I moved toward the ground, and my ring caught in one of the U-shaped grooves used for securing canvas covers on the trailer.

I was horrified as I looked at my finger. The skin and most of the tissue on my ring finger was completely gone, and the bone from the first joint just above my fingernail was missing. I called out to the other guys and said, among other choice words, "Hey, get a medic, get the aid bag—I've lost my finger!"

Needless to say, I was in a lot of pain. Another Soldier got a combat lifesaver bag and pulled out a pressure bandage, which I wrapped around what was left of my finger. The commanding officer dialed 911 and had a pickup truck brought off the roadway so I could sit down and take off my helmet, weapon, and vest. We were only about 4 minutes from main post, so the ambulance arrived fairly quickly and took me to the emergency room at Darnell Army Community Hospital.

The doctors there told me the damage to my finger was so extensive they didn't know if any attempted repair would work. The tissue, nerves, and vessels were torn horizontally, and reattaching my finger would require 8 to 10

hours of surgery with no guarantee of success. In fact, there was only a 20-percent chance my finger wouldn't have to be amputated even with surgery due to the nerve and vessel damage, which reduced blood circulation in the injury to zero.

I faced a tough decision. The doctors told me my best course of action would be amputation because I would have a good chance of full recovery after rehabilitation. They let me decide, however, and after talking with my wife, I gave the doctors permission to amputate. They performed surgery that night, and my finger was amputated to the first joint—ironically, at the same place my wedding ring had rested just that morning.

It's been about 2 months since the accident, and I recently started rehab. I still feel a lot of pain, not just in my hand but all the way up my arm. The doctors explained some of the ligaments and tendons in my arm were pulled during the accident, and I'll experience phantom pain the rest of my life. I've lost about half the gripping power in my hand, which isn't good since I'm left-handed. I'll have to learn how to write and type again, but I can shoot right-handed—a definite plus for a Soldier. My long-term prognosis is pretty good, though; the doctors tell me that after about 4 months of occupational therapy I should be back to normal.

I share this story in the hope I'll open another Soldier's eyes and prevent them from making the same mistake. The doctors predict I'll be able to deploy back to theater with my unit later this year, but I could just as easily have lost my career that winter afternoon. Believe me, I'll do everything in my power to make sure I deploy with the Soldiers I've trained because I know they need me. I think it'll be a morale booster if my Soldiers can look at me and say, "If he lost a finger and is *still* here with us, we can do anything."

I'll be wearing my wedding ring on my right hand from now on, but I promise you this: I'll take it off whenever I put my uniform on, no matter what's planned that day. You never know what might happen. I survived a year in Iraq unharmed only to come home and lose my finger because I was tired and wasn't thinking straight. Stay alert and realize even the simplest of tasks can hurt you in a big way. If it can happen to me, it can happen to you too!

Editor's note: SFC Melancon would like to thank his team of doctors, led by LTC John J. Faillace at Darnell Army Community Hospital, for their outstanding care during his hospitalization and subsequent rehabilitation. He also would like to thank the Soldiers, NCOs, and officers of Delta Company, 215th BSB and 6th Squadron, 9th Cavalry for their continued support. "FIRST TEAM!"

Contact the author via e-mail at david.alan.melancon@us.army.mil.

Giving the Finger

This soldier injured his pinky finger while serving in Iraq during the first year of conflict. The injury itself isn't very remarkable and he made a full recovery, but notice the ring next to the injured finger. It's never safe to wear rings or other jewelry in a field or combat environment. If the ring gets caught on something, you risk either a degloving injury (i.e., all the skin peeled off) or total amputation. Both injuries hurt a lot, so keep your ring in a safe place—not on your hand—when you're on duty.

Special thanks to LTC Roman Bilynsky, MD, who submitted this photo from his time with the 4th Infantry Division in Iraq.

Nature's Quiet Ambush

ACCIDENT INVESTIGATION DIVISION
U.S. Army Combat Readiness Center

The mission was a daylight combat route recon that involved a group of three M1114 HMMWVs. There's no such thing as a "routine" patrol in this part of the world, so the crews were prepared for almost any contingency. In addition to the hardened HMMWVs, the team was equipped with three cupola-mounted M2s, advanced combat helmets with blast shields, and the latest individual body armor. They'd been trained to use all their equipment effectively.

The team included a medic, a platoon sergeant, a platoon leader, and experienced junior enlisted Soldiers. In fact, no one on this patrol was a newbie. They were prepared to meet the enemy, but the enemy can appear in many forms. This day, it took the form of a muddy trail that paralleled a freshly dug canal.

The mission was progressing normally until the vehicles came upon a section of roadway partially blocked by a large dirt mound. As the patrol eased slowly around the mound, the rain-soaked soft shoulder gave way, causing the third M1114 to roll over into the canal. Despite the team members' heroic efforts to save all their fellow Soldiers, they were unable to rescue the gunner, who was trapped under the vehicle and drowned.

Applying Composite Risk Management (CRM) in combat is a difficult challenge. CRM is the logical balance between assuming risk to disrupt or destroy the enemy and recognizing that accepting too much risk can help the enemy by needlessly injuring or killing Soldiers and destroying equipment. Generally, the greater the payoff, the more overall risk leaders might be willing to assume. It's not an exact science, and experience, training, and intelligence are vital to successful CRM implementation.

For example, within the area of responsibility (AOR) described above, 38 Soldiers had been lost to all causes before the canal rollover. Improvised explosive devices (IEDs) alone accounted for 27 Soldier deaths. In this AOR, IEDs clearly represent the greatest risk to Soldier safety, so disrupting this activity is given high priority. Along with this priority comes a willingness to accept risks to accomplish the mission. The mission of the patrol that suffered the canal accident was part of the overall effort to mitigate the enemy's ability to conduct IED attacks.

This risks-versus-rewards decision is always a gamble but, given the opportunity, any good poker player would stack the deck in his favor. CRM is the stacked deck. No accident, no matter how important the mission, should pass

DID YOU KNOW?

An impact wrench has been added to the M1114 Additional Authorization List. Users can choose between two approved products: DC Tools' impact wrench, NSN 5130-01-536-6492; and Aircraft Dynamics' impact wrench, NSN 5130-01-363-0964. Neither of the approved impact wrenches has the sockets needed to remove the lug nuts, so users must purchase an additional 7/8-inch socket impact wrench, NSN 5130-01-400-0177, to complete the kit.

without analysis. There are a few lessons learned from this accident that can stack the deck further in your favor during future missions:

• Dirt roads can deteriorate significantly after heavy rains, particularly if the road is on a dam or levee. Divert at the earliest opportunity if the road appears unstable, excessively narrow, or washed out.

• It's extremely difficult to egress an inverted M1114, and trapped Soldiers might require assistance from other personnel outside the vehicle. Soldiers might consider disengaging the combat locks in rural areas with a high rollover risk. They also should be prepared to pull the doors off the hinges using a portable impact wrench. A portable floor jack also might prove useful in some roadside emergencies.

• If the tactical situation allows, consider momentarily tucking the gunner inside the vehicle in excessively hazardous road conditions. The gunner can assume his normal position once the area is cleared.

• Soldiers submerged in cold water can develop hypothermia quickly. Surviving crewmembers and rescue personnel must extract trapped occupants as soon as possible, even if there's adequate breathing space inside the vehicle.

• Practice rollover drills like your life depends on it, because it does. The team in this accident had no more than 2 or 3 seconds between "ops normal" and fighting their way out of an upside-down, 7-ton truck sunk in freezing water. Graphic Training Aids 55-03-030 and 55-03-031 contain rollover and egress procedures for the M1114 HMMWV. A full-motion rollover simulator also is being made available to units in the field, so take the opportunity to use this valuable training tool when it's in your area.

• Vehicle bumpers should be outfitted with a chain, strap, or cable to right the vehicle after a rollover, at least to a point where the doors can be opened. Consult with your unit's recovery operators to determine the proper placement for these items.

• All Soldiers must wear their seatbelts. They're almost always an asset, even in combat.

• Leaders should develop an after-action reporting system to document potential hazards, and then share this information with other Soldiers.

• Develop a continuity book and give it to the Soldiers replacing your unit. The book should contain all the lessons learned and mission improvement initiatives begun during your unit's deployment.

CRM is a dynamic process. Unanticipated hazards must be addressed as the accident risks and enemy threats change during the mission. Pre-mission planning is important, but it's often just a best guess. Reality will unfold as the convoy rolls out the front gate.

Comments regarding this article may be directed to the U.S. Army Combat Readiness Center (CRC) Help Desk at (334) 255-1390, DSN 558-1390, or by e-mail at helpdesk@crc.army.mil. The Accident Investigations Division may be reached through CRC Operations at (334) 255-3410, DSN 558-3410, or by e-mail at operationssupport@crc.army.mil.

The Heat Is On

COL JOHN CAMPBELL
U.S. Army Combat Readiness Center

It's that time of year again. We're finally thawing out from the cold winter chill and starting to enjoy the warm, welcome spring. Although we're comfortable now, this is the time to begin thinking about the significant health risks facing our Soldiers in the upcoming summer months.

Here at Fort Rucker, AL, we've already enjoyed days with temperatures just above 80 degrees. I was talking with my daughter one of those days, but she was walking to class at Penn State University in snow and sleet. Her attire was in sharp contrast to her brothers, who'd just left for school in shorts and T-shirts.

Similar contrasts exist throughout the Army's various worldwide locations. We must focus on heat injury prevention at home and in theater and also develop preventive measures to mitigate heat risks. Our Soldiers are our most valuable resource, and these measures must help them achieve and sustain maximum combat efficiency.

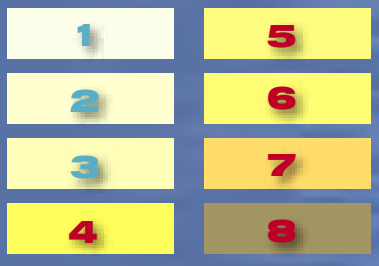
Even with the best of intentions, however, Soldiers die every year from heat-related injury or illness. From the beginning of Fiscal Year (FY) 2003 to the end of FY05, 13 Soldiers died from heat stroke or other heat-related causes. Nearly 2,800 heat injuries occurred among Soldiers during the same timeframe, with more than 500 cases attributed to heat stroke and almost 2,200 involving heat exhaustion.

Commanders can be (and have been) relieved of duty if one of their Soldiers suffers a heat injury that could've and should've been prevented. It's no secret heat injuries are preventable, and commanders are charged with mitigating the risks their Soldiers face, whether from the enemy, an accident, or the environment. None of this is new information, so why are we still losing Soldiers to the heat?

An abundance of guides,

GOT HYDRATION?

URINE COLOR CHART



This urine color chart is a simple tool you can use to assess if you're drinking enough fluids throughout the day to stay hydrated.

If your urine matches the colors numbered 1, 2, or 3, you're hydrated.

If your urine matches the colors numbered 4 through 8, you're dehydrated and need to drink more fluids.

Work/Rest and Water Consumption Table

- The work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified heat category. Fluid needs can vary based on individual differences (± ¼ quart/hour) and exposure to full sun or full shade (± ¼ quart/hour)
- NL = no limit to work time per hour
- Rest = minimal physical activity (sitting or standing) accomplished in shade, if possible
- CAUTION: Hourly fluid intake should not exceed 1½ quarts; daily fluid intake should not exceed 12 quarts
- If wearing body armor, add 5 °F to WBGT index in humid climates
- If doing easy work and wearing nuclear, biological, chemical (MOPP 4) clothing, add 10 °F to WBGT index
- If doing moderate or hard work and wearing nuclear, biological, chemical (MOPP 4) clothing, add 20 °F to WBGT index

technical bulletins, memos, and heat injury prevention programs are available on the Internet and should be pushed down to commands for dissemination to Soldiers. The trick is integrating them in our planning and Composite Risk Management (CRM) processes.

Heat injuries aren't due to dehydration alone. When added together, several factors—including exposure—can lead to a Soldier's injury or death. Soldiers should stay out of direct sunlight as much as possible and use sunscreen at all times. They also must consider any medications they're taking because many drugs, including supplements, have diuretic properties that increase urination.

Likewise, Soldiers should avoid soft drinks, coffee, and tea while performing physical activity in warm weather. The caffeine in these beverages acts as a diuretic, and they shouldn't be considered for fluid replacement. Additionally, physical activity must be modified based on time of day and recommended work/rest cycles.

Leaders, please use all the resources available to you and your Soldiers as we enter the hot summer months. A good resource is the U.S. Army Center for Health Promotion and Preventive Medicine Web site at http://chppm-www.apgea.army.mil. Don't let a heat casualty happen in your formation. If you do, the heat will be on you, so stay cool and Own the Edge!

Contact the author by e-mail at john.campbell@us.army.mil.

Here's how the five steps of CRM should be applied to reduce heat casualties:

1. Identify hazards—HEAT
- **H**igh heat category
- **E**xertion level of activity
- **A**cclimatization (don't forget altitude)
- **T**ime (length of activity and time of day)

2. Assess hazards
- Ambient temperatures (i.e., a heat category assessment using Wet Bulb Globe Temperature should be conducted and adjusted for temperature variance)
- Know your Soldiers (e.g., their hydration status, risk factors, or certain medications that might increase risk)

3. Develop controls
- Education–establish standard operating procedures (SOPs) and train as you'll fight
- Planning–develop a plan to have ample hydration sources available based on activity levels, and provide rest cycles as needed
- Identification–identify and note previous heat casualties along with current illnesses
- Develop a hydration monitoring system–use current guidelines; Soldiers should hydrate continuously to produce urine that's clear to very light yellow in color

4. Implement controls
- Ensure risk decisions are made at the appropriate level
- Ensure controls are implemented
- Monitor and enforce a hydration standard
- Execute random checks
- Follow clothing and equipment recommendations

5. Supervise and evaluate
- Enforce SOPs through constant monitoring and frequent walk-throughs
- Conduct spot checks
- Develop contingency plans for injuries that might occur despite preventive measures
- Continually re-evaluate the situation and adjust controls as needed

Oh, That's Sick

JULIE SHELLEY
Managing Editor

The mercury's rising in the glamorous locales Soldiers serve in every day, and it's only going to get hotter. Unfortunately, heat injury and staying comfortable aren't the lone worries facing those serving in the Middle East and other faraway places. Hot weather means bugs in abundance, and some, like mosquitoes and sand flies, carry nasty diseases that are unpleasant at best and sometimes even fatal. The list below highlights just a few illnesses found in the Army's current operational areas.

West Nile Virus (WNV). This disease is carried by mosquitoes and can be found all over the world, including the United States, Iraq, and Africa. Mosquitoes transmit the disease by feeding on infected birds and pass the virus to humans when biting them. The virus produces flu-like symptoms including fever, headache, and body ache. In rare cases, WNV causes encephalitis, an inflammation of the brain that can be fatal. There currently is no cure for WNV, but symptoms and complications are easily treatable.

Leishmaniasis. Leishmaniasis, or "Baghdad Boil," occurs in many hot climates around the world but has earned infamy among troops in Iraq. The disease has three forms: cutaneous, mucocutaneous, and visceral, each of which produce different symptoms. Humans acquire leishmaniasis through the bites of infected sand flies, which proliferate throughout Kuwait, Iraq, and Afghanistan. Most Soldiers diagnosed with leishmaniasis have suffered from the cutaneous form, which produces ulcer-like lesions that can be painful or disfiguring and are treated with powerful anti-parasitic medications.

Sand Fly Fever. Like leishmaniasis, sand fly fever is transmitted to humans through the bites of infected sand flies. Symptoms include high fever, headache, limb and neck stiffness, and nausea and vomiting. There is currently no cure for sand fly fever, but the disease is rarely fatal.

Ocular Myiasis. This eye disease is common in the Middle East and is caused when fly larvae, or maggots, invade the human eye. Although most cases occur in the eyelid or conjunctiva and can be treated without complication, blindness or other serious damage can occur if the larvae penetrate the eyeball. Symptoms are similar to those caused by pink eye, including pain, burning, itching, redness, and increased tearing. Treatment involves forcible extraction of the larvae with fine, tweezer-like forceps and, following removal, antibiotic ointments or drops. In severe cases, surgery might be required to remove the larvae.

Tick Typhus. This form of typhus is found in the Middle East and is spread to humans through the bites of infected ticks. Symptoms include fever, severe headache, weakness, and cough. Tick typhus is easily treatable with antibiotics, but complications such as gangrene and kidney failure have been reported in some cases.

Dengue Fever. This fever, like WNV, is spread by infected mosquitoes and can be found in most tropical parts of the world, including Africa and Asia. Dengue produces flu-like symptoms including high fever, rash, headache, nausea and vomiting, and joint and muscle pain. However, without treatment, the disease can progress to a hemorrhagic form that produces bleeding from the nose, mouth, and gums and often results in death. There is

no cure for dengue fever, but symptoms can be treated easily with rest and increased fluid intake.

Crimean-Congo Hemorrhagic Fever. Although this disease primarily affects animals, human cases have been reported in the Middle East. Humans contract the disease through the bites of infected ticks and experience sudden symptoms ranging from fever, muscle pain, dizziness, and light sensitivity to nausea and vomiting. The disease can be fatal if left untreated.

The good news is the Army provides you with the protection you need to prevent these distasteful ailments. Your uniform is the first component of this protective system, but you must wear it properly. This means keeping your sleeves rolled down, tucking your pants into your boots, and tucking your undershirt into your pants.

The second component is insect repellent, applied to both your person and your uniform. The Army offers two clothing repellent options that each contain permethrin, a chemical that kills most insects on contact. The first is an aerosol spray (NSN 6840-01-278-1336) that lasts five or six washes; the second is an impregnation kit (NSN 6840-01-345-0237) that, once used, lasts the life of the uniform.

Insect repellent sprays or lotions that contain at least 25 percent DEET are most effective for protecting bare skin not covered by your uniform. The standard military skin repellent lotion (NSN 6840-01-284-3982) contains 33 percent DEET and lasts up to 12 hours. You should apply a thin, even layer of DEET lotion or spray to all exposed areas of your skin, including your face, and reapply as needed.

Soldiers in Iraq, Afghanistan, and other operational theaters must use these protective measures at all times. Many disease-carrying insects, including sand flies and mosquitoes, are active all day, every day and bite both indoors and outside. More information on these diseases and other deployment-related health information can be found on the U.S. Army Center for Health Promotion and Preventive Medicine Web site at http://chppm-www.apgea.army.mil.

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Dog Days?

Despite repeated warnings from military health professionals and commanders, some Soldiers continue to believe flea and tick collars are an effective way to combat pests like sand flies and fleas in the Middle East. These collars are designed for furry pets and, as such, contain high levels of various pesticides that are harmful to less-hairy humans. Unlike cats and dogs, humans also sweat to cool off, and sweat leaches the pesticides from the collars straight to your skin—even through fabric. The pesticides are then absorbed through your skin and can cause injuries from chemical burns to systemic poisoning. Additionally, flea and tick collars don't even repel insects on humans. The bugs simply avoid the collar and move to some other vulnerable body part. A properly treated uniform and DEET repellent do everything flea collars don't and won't make you sick either. Which would you rather use?

Along Came a Spider

1LT MATTHEW NOWLIN
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There's an old saying that goes, "It's not the heat, it's the humidity that gets you." (Tell that to a Soldier in Iraq in July!) I was in Alabama attending an enlisted aerial observer course one summer, and I discovered that state is both hot and humid pretty much year round. Therefore, I wasn't surprised one morning when I noticed a small pimple on the inside of my knee, which I quickly dismissed as prickly heat.

I was quick to assume the bump was heat-related because I'd been wearing a one-piece, green flight suit—the old "pickle suit"—since I'd arrived at Fort Rucker. At first I felt like Maverick in "Top Gun," but the suit's Hollywood novelty wore off after just a few sweltering days. I became concerned when the pimple grew bigger throughout the day, and by the next morning the area was so swollen I couldn't bend my knee. I was in intense pain, and the bump was surrounded by redness that extended for several inches in all directions.

By then I was almost panicking, so I went to the hospital on post. The doctor diagnosed me as having Job Syndrome. He gave me a refresher course in Biblical history and explained the disease is named for Job, who, among his many troubles, developed sores over his entire body as punishment for his disobedience to God. The doctor "reassured" me and said I probably would experience the sores on various body parts for the rest of my life. He then prescribed that famous Army cure-all, Motrin, and some antibiotics.

The abscess went away over the next several weeks but left a ghastly scar. But as soon as that one cleared up another bump formed, this time on my chin. Even opening my mouth was difficult, and my friends teased me about my resemblance to Popeye, complete with bulging chin and crooked smile.

I went back to the hospital and saw a physician's assistant (PA). He took one look and said the wound was caused by a spider bite, probably a brown recluse. He said the area needed to be cut out immediately, so he began the procedure right away. Halfway through, however, he said, "I'm going to be sick!" and left the room. There I was, all alone and lying on an exam table with an open lesion on my face, blinded by surgical drapes. After what felt like an eternity, I sadly gurgled, "Hello ... is anybody out there?"

The PA came back, finished the job, and sent me back to the barracks. That particular bite cleared up too, but other similar wounds soon developed on my face and elbow. I was so frustrated because I didn't know where I was getting bit. The PA said brown recluses are common in barracks and advised me to look in and around my bed and linens, but I never found any spider, much less a brown recluse.

I graduated the course and went back to my home station in Maryland. My unit sent me to the post hospital at Fort Meade for treatment and a line of duty investigation. Once I left Fort Rucker, though, I never had another problem. However, I still have some small scars on my face to remind me of my time there.

That summer, I learned a valuable lesson about creepy-crawlies that's stayed with me since then. I'd never even heard of a brown recluse spider before I was bitten by one. Years later I was deployed to Iraq, and you better believe I studied up on the resident wildlife I'd encounter there. I didn't have to worry about brown recluses, but there were plenty of camel spiders, scorpions, and alien-like mole crickets around to get my attention.

DID YOU KNOW?

The deserts and highlands of Iraq, Kuwait, and Afghanistan are crawling with arachnids such as scorpions, spiders, and solpugids, or camel spiders. Three of the deadliest scorpions in the world call Iraq and Kuwait home, and at least three venomous spiders—the black widow, tarantula, and yellow sac spider—are found in both countries. Several species of scorpion are native to Afghanistan, as are the black widow, tarantula, and camel spider. Soldiers should never handle any of these creatures and always shake out their shoes, bed linens or sleeping bags, and clothing to prevent bites. A full-color poster showing the arachnids found in theater can be downloaded off the Army Center for Health Promotion and Preventive Medicine's Web site at http://chppm-www.apgea.army.mil/deployment/arachnidsofiraqandkuwait.pdf.

Now, I always shake out my bedding and check my boots when I'm in the field, in the barracks, or in theater, a practice I adopted after my brown recluse experience. When you're in an unfamiliar place, use risk management to identify and assess the hazards—regardless of how small they might seem—and then develop and implement controls to reduce the risk. If you don't watch out, those risks might come back to bite you!

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Bolts from the Blue

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Summer is just around the corner, and as the weather gets warmer most training activities will move outdoors. Numerous hazards are associated with outdoor training during the spring and summer months, most notably heat injury. Sometimes, however, Soldiers fall victim to another of nature's cruel tricks—lightning, which is just as lethal as heatstroke but much less predictable.

Of weather-related fatalities, only floods kill more people annually in the U.S. than lightning. About 90 Americans die from lightning strikes each year, and twice that number are injured. Men are three times more likely than women to be struck by lightning. About 30 percent of people stuck by lightning die from their injuries, and nearly 75 percent of lightning strike survivors suffer permanent disabilities.

Although each of the U.S. armed forces usually reports some personnel- or equipment-related lightning strikes each year, the Army has the highest casualty rate among the services. Military personnel are at high risk for lightning injury and death due to the nature of their training and operational activities. Many of these activities take place outdoors in all types of weather and within lightning-prone areas such as the southern U.S. and the open deserts of Iraq. Infantry and artillery Soldiers are at higher risk than other specialties because of the outdoor nature of their training and operations.

Most lightning-related incidents reported in the Army involve a single strike that causes multiple personnel injuries. This is because exercises and operations often involve a group of Soldiers working as a team, and these clusters form a larger target. Examples of incidents where multiple injuries might result include lightning striking metal or wet equipment, flash lightning exploding from a target, or lightning currents traveling along the ground.

Here are a couple of examples to illustrate this phenomenon. At Fort Irwin, CA, in August 2005, three OPFOR Soldiers were struck by lightning on a hilltop. Several years before that incident, eight Soldiers were injured at Camp Grayling, MI, when lightning struck some trees 50 feet away. The Soldiers sought shelter under a tarp when the thunderstorm appeared and were hit when the lightning current traveled at ground level to their location.

There's no single action that eliminates the risk of lightning, but you can reduce your probability of being struck by following a few simple rules. For instance, avoid high areas, open fields, isolated trees, unprotected gazebos, rain or picnic shelters, communication towers, flagpoles, open-top vehicles, and water during thunderstorms. It doesn't matter if the storm appears to be far away—thunder signals approaching lightning, and you should take cover

DID YOU KNOW?

More than 30 million lightning strikes are recorded each year in the U.S. Most of these strikes occur in Florida or along the Gulf of Mexico, but the majority of military lightning strikes are reported in Louisiana, Georgia, and Oklahoma.

as quickly as possible.

If a thunderstorm approaches and a building or closed-top vehicle isn't available, seek shelter under the smallest tree in a group of several large trees, but never under a single tree. Stay at least 6 feet away from the trunk to minimize risk from a side strike. If you're caught in an open area without trees or other shelter, assume the lightning safety position: crouch with your feet as close together as possible with the heels together, and place your hands over your ears. Do not lie flat on the ground!

If you're training or operating in the open and see lightning or hear thunder, use the "30/30 rule" to determine when to seek shelter. When you see lightning, count the seconds between the flash and the thunderclap. If it's 30 seconds or less, a thunderstorm is within 6 miles and you should seek shelter immediately. Don't be fooled by blue sky, either. About 75 percent of lightning injuries occur very early or very late in a storm's life, and strikes have been recorded from as far as 56 nautical miles away. Wait at least 30 minutes after the last thunderclap before leaving your shelter.

Leaders play a vital role in preventing lightning casualties among their Soldiers. During outdoor training missions, they should designate a weather guard to alert personnel of impending bad weather. Leaders also must decide beforehand when to modify or suspend outdoor training and where to seek shelter in the event of thunderstorm activity.

No one can control the weather, but you can control your risk of becoming a lightning casualty. Spring and summer thunderstorms are just around the corner, so be prepared and Own the Edge!

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ACV

Class A

- An M1A2 tank was destroyed by fire. The fire began in the tank's engine compartment and engulfed the vehicle, burning off munitions as it spread. The crew evacuated the vehicle without injury and attempted to control the fire with handheld extinguishers. The accident occurred during the early morning.

AMV

Class A

- Two Soldiers were killed when the M1114 HMMWV they were riding in was struck by a civilian dump truck. The Soldiers were serving as the HMMWV's gunner and vehicle commander (VC) during a convoy escort mission. Additional injuries and seatbelt use were not reported. The accident occurred during the mid-morning.

- Soldier died when the M1114 HMMWV he was driving struck an M1A2 tank and rolled over. The driver was operating the vehicle under night vision devices in blackout drive when it hit the tank. Two passengers inside the HMMWV were injured. Injuries to the Soldiers inside the tank and seatbelt use in both vehicles were not reported. The accident occurred during the mid-evening.

- Soldier was killed when the M1114 HMMWV he was riding in rolled over into a canal during a combat patrol mission. The Soldier was serving as the vehicle's gunner when the HMMWV began sliding and overturned into the canal. The Soldier was pinned beneath the vehicle and drowned. Injuries to other vehicle crewmembers were not reported. The accident occurred during the mid-morning.

- Soldier died when the M1114 HMMWV he was riding in struck a concrete barrier and rolled over during a combat patrol mission. The Soldier was serving as the vehicle's gunner. The HMMWV's driver and one foreign national interpreter were injured. The accident occurred during the late afternoon.

- Soldier suffered a permanent total disability when the M1114 HMMWV he was riding in rolled over. The HMMWV was providing convoy security when it hit a wet spot on the roadway, slid sideways, and overturned. The Soldier was serving as the VC. The driver suffered unspecified back injuries. Neither the nature of the VC's injuries nor seatbelt use was reported. The accident occurred during the mid-morning.

Class B

- An M1114 HMMWV overheated and caught fire during a convoy operation. The fire began in the vehicle's engine block and consumed the HMMWV. The crew unsuccessfully attempted to extinguish the flames. No injuries were reported. The accident occurred during the early morning.

Personnel Injury

Class A

- Soldier collapsed and died while running during physical training (PT). The Soldier was running on a road adjacent to a U.S. Air Force base when he collapsed and was found by another Soldier, who then called for help. The Soldier was pronounced dead at a local hospital. The accident occurred during the early morning.

- Soldier collapsed and died while participating in a company PT run. The Soldier was transported to a local hospital, where he was pronounced dead. The accident occurred during the mid-morning.

- Soldier was killed when the tent he was sleeping in caught fire. The Soldier suffered second- and third-degree burns to more than 70 percent of his body and died on the way to a local medical facility. The accident occurred during the early morning.

- Soldier collapsed and died while conducting an individual 3-mile PT run. Although lifesaving measures were performed immediately, the Soldier was pronounced dead at a local hospital. The accident occurred during the early morning.

Seatbelt Success Stories

Spotlighting Soldiers who wore their seatbelts and walked away from potentially catastrophic accidents

- Soldier suffered a fatal gunshot wound to his head following live-fire training. The Soldier was in the bivouac area following the exercise when a round was fired from an M4 rifle being handled by another Soldier. The accident occurred during the early evening.

Class B

- Soldier suffered a permanent partial disability when a sliver of metal lodged in his eye. The Soldier was working in the motor pool with other Soldiers who were removing sprockets from a tank hub carrier with a hammer. The metal sliver originated from the hub carrier. The accident occurred during the late afternoon.

- Soldier suffered a permanent partial disability when he injured his hand while adjusting the forks on a forklift. The Soldier's left-hand index finger was amputated to the second knuckle, and his middle and ring fingers were crushed. The accident occurred during the late morning.

- Soldier suffered a partial amputation to one of his fingers when a light set fell on his hand. The Soldier was lowering the light set when it slipped, catching his hand between the boom and base components. The accident occurred during the mid-evening.

Class A

- **Soldier suffered fatal injuries when the M1114 HMMWV he was riding in struck a civilian vehicle head-on at an intersection. The Soldier was serving as the vehicle's gunner and was thrown from the HMMWV upon impact. Four local nationals inside the civilian vehicle also were killed. The accident occurred during the mid-afternoon.**

Class D

- **Two Soldiers escaped without injury when their M923A2 5-ton cargo truck rolled over. The Soldiers were participating in a field training exercise and were driving along a tank trail. The trail was wet from an earlier rainstorm, and the truck began to slide and skid as it went down a slight hill. The truck overturned into a small ditch on its right side. The Soldiers were wearing their seatbelts and exited the vehicle through its front windshield. The accident occurred during the late afternoon.**

- **Two Soldiers were uninjured when their M998 HMMWV rolled over during a convoy mission. The HMMWV was traveling under an overpass when the driver lost control after attempting to change lanes quickly. The vehicle slid sideways and hit a curb and guardrail before overturning twice. Both Soldiers were wearing their seatbelts and were released for duty by medics at the scene. The accident occurred during the mid-morning.**

- **Soldier survived without injury when the forklift he was driving rolled over. The Soldier was unloading cement barriers from a truck and using a ground guide when one of the barriers caught and scraped the top of the forklift, causing it to overturn. The Soldier was wearing his helmet, seatbelt, and body armor and was released for duty following a medical assessment.**

WHAT WERE THEY THINKING?

WHERE THERE'S FIRE...

Remember when you were a kid and your mom made you take out the garbage? And her stern warnings about playing with fire, staying out of the street, etc.? Two incidents in Iraq prove mom was right about fire, especially when garbage and large trucks are involved.

Our first two "sanitation engineers" were on kitchen patrol duty at a mess hall. They'd been there about 5 hours when a supervisor told them to take an LMTV loaded with trash to the local burn pit. Undoubtedly more exciting than mopping floors, the short drive to the dump provided the Soldiers a brief reprieve from their otherwise boring day. What they didn't know was just how much excitement awaited them there.

The Soldiers backed the truck to the edge of the burn pit, tossed the garbage into the flames, and stretched the truck's canvas tarp back over the cargo bed. Although they heard a popping noise as they drove away, nothing seemed amiss, so the Soldiers continued back to the mess hall. They were only a quarter-mile from the dump, however, when they saw some other Soldiers frantically motioning their arms toward the back of the LMTV.

Somewhat puzzled, the Soldiers looked back at the cargo bed and, to their horror, saw bright orange flames leaping from some mermite storage containers just behind the cab. They hit the brakes, jumped out, and began a futile effort to suppress the flames with the truck's fire extinguisher. It was going to take a lot more than one extinguisher to save this truck, though. In the end, it took more than 20 various-sized extinguishers, over 100 gallons of water, and a lot of Soldier sweat to put out the fire.

The theory behind the blaze goes something like this. It was a windy day, and some burning embers were blown onto the canvas tarp. The embers burned through the tarp and ignited the mermite containers, which quickly set the truck bed aflame. Fortunately, the two Soldiers got out of the truck before the fire reached the cab, and they escaped without physical harm. But they were reprimanded for parking too close to the fire pit, and it's doubtful they'll be pulling garbage detail again anytime soon. Mop bucket, anyone?

THERE'S USUALLY MORE FIRE.

It's hard to believe anyone could top the two geniuses in our first story, but two Soldiers one-upped them a few months later. The scenario was much the same—a truck (but this time an M923A2) filled with garbage, two fearless warriors, and a burn pit. They too backed the truck to the pit's edge and disposed of the trash. However, this pit was at the bottom of a hill, and the truck got stuck on its way back up the slope.

As if being stuck in a burning garbage pit isn't bad enough, the recently dumped trash ignited and added a whole new problem to the mix. The driver frantically stepped on the gas, but the truck's tires caught fire. By now the driver's Army career was flashing through his mind, and he grabbed the truck's fire extinguisher in a hopeless attempt to smother the flames.

Lucky for him, the dump attendant was working on a bulldozer nearby. One tow cable and a few hearty pulls from the bulldozer later, the truck was out of the pit, although still on fire. Several other Soldiers pitched in and were able to control the flames with dirt until the fire department arrived. Again, no one was injured, but the driver did get a stern lecture about the dangers of backing into a flaming trash pit. Maybe the